

Power Electronics Projects

DC-DC Converters

1. A Non-Isolated High Step-Up DC-DC Converter Using Voltage Lift Technique: Analysis, Design, and Implementation.
2. Input Current Ripple Reduction in a Step-Up DC–DC Switched-Capacitor Switched-Inductor Converter.
3. A Cuk-Based Modular DC–DC Converter for Medium Voltage Direct Current (MVDC) Applications.
4. MMC Based Hybrid Switched Capacitor.
5. High Voltage Gain Switched-Z-Source Bidirectional DC-DC Converter.
6. Ring-Connected Dual Active Bridge Multiport Converter for Fast EV Charging.
7. Step-Up Switching Converter with Single Switch and Multiple Outputs Based on Luo Topology.
8. High Gain Z-Quasi Resonant DC/DC Converter for Off-Board EV Charging.
9. Single-Switch High-Step-Up Converter Employing Coupled Inductor and Voltage Multiplier.
10. Multiphase Interleaved Cascaded Non-Inverting Buck-Boost Converter.
11. Resonant Soft-Switching Ultra-High Gain DC-DC Converter with Continuous Input Current.
12. Transformerless Quadruple High Step-Up DC/DC Converter Using Coupled Inductors.
13. Multi-Output DC-DC Converter for Electric Vehicles.
14. High Step-Up PWM Non-Isolated Converter with Soft Switching.
15. Cascade PI Controller-Based Model Reference Adaptive Control for DC-DC Boost Converter.
16. Interleaved High Step-Up Converter with Coupled Inductor and Built-in-Transformer.
17. High Gain DC-DC Converters for Microgrid Applications.
18. Extended Design of Two Inductor Based High Gain DC-DC Converters.
19. Bidirectional DC-DC Converter for Hybrid Energy Integration.
20. AC/DC Converter fed Parallel Interleaved DC-DC Converters for Fast Charging.
21. SEPIC PFC Fed LLC Resonant Converter for EV Chargers.
22. Single-Phase Integrated Battery Charger Simulation Comparing On-board PFC and PSFB Converters.
23. Dimmable PFC LED Driver with Digital Controller for Isolated SEPIC Converter.
24. Flicker-Free LED Driver Using Tapped Inductor Boost-Flyback PFC Converter.
25. Multifunctional Isolated DC-DC Converter for Electric Vehicles.
26. Interlinking Unipolar and Bipolar DC Microgrids Using a Bidirectional DC-DC Converter With Voltage Balancer Support.
27. A Novel Non-Isolated DC-DC Converter for Marine Water Pumping Applications using Solar PV System.
28. On the Control of DC-DC Converters in the SS-Compensated Wireless Power Transfer System.
29. A Low-stress High-gain Interleaved DC-DC Converter with Self-balancing Capacitor Voltage.

Inverters

1. Three-phase Three Level NPC Inverter.
2. Hybrid Multilevel Inverter for Harmonic Mitigation.
3. Comparison of 2-Level and 3-Level Si IGBT Inverters.
4. 9-Level Inverter for Standalone Applications with Reduced Devices.
5. Direct Torque Control Based Three-phase S3 Inverter.
6. Common Grounded Five-Level Boost PV Inverter.
7. Improved H6-Type Single-Phase PV Inverter with Reduced Leakage.
8. Novel Multilevel Inverter with Minimum Switching Components.
9. Advanced Multilevel Inverter for Industrial Applications.
10. Interleaved Flyback Micro Inverter with H5 Topology for PV.
11. Reduced Switching Frequency Operation of Parallel Connected Two-level Inverters with Isolated DC-links for STATCOM Application.
12. Intelligent Controller Design for Fault Current Mitigation in Dstatcom Applications Using Three Phase NPC Inverter.
13. A Supercapacitor Assisted Technique for Reducing Losses in the Input Loop of an Inverter System for Solar PV Applications.
14. Implementation of Seven-Level Asymmetrical Multilevel Inverter for Solar PV Application.
15. MPC-Based Harmonic Injection Techniques for Reconfigurable Single/Three-Phase Inverters with Grid Neutral Point Connection.
16. Deadbeat Control Method for T-type Three-Phase Four-leg Three-level Inverters.
17. A Full-ANN Control Scheme of Single-Phase Grid-Connected Inverter.
18. Switching Loss Reduction in Dual Inverter Topology Using Optimized Modulation Strategy.

Electric Vehicles

1. PFC Based EV Battery Charger Using Cuk-SEPIC Converter.
2. Converter Circuit for Multiple Output EV Battery Charger.
3. Bridge-less PFC Converter for EV Charger Development.
4. Three Phase Bi-directional EV Battery Charger with G2V & V2G.
5. Single Phase Bi-directional EV Battery Charger with G2V, V2G & V2L.
6. Ring-Connected Dual Active Bridge Converter for EV Fast-Charging.
7. High Gain Dual Input Single Output Z-Quasi Resonant Converter for EV Charging.
8. Multi-Output DC-DC Converter for Electric Vehicles.
9. Modeling and Analysis of Hybrid Photovoltaic based DC Bus System for EV Applications.
10. IoT Incorporated Prepaid Charging System for Electric Vehicles: A Design with RESs.
11. Intelligent Charging system for Electric Vehicle Batteries.
12. Interleaved Boost PFC with Half Bridge LLC Resonant Converter based EV Battery Charger.
13. PV fed Off-board E-bike Battery Charger using LLC Resonant Converter.
14. Performance of Single-Stage and Dual-Stage EV Battery Chargers for G2V and V2G Operation.

15. A Single-Phase Integrated Onboard Charger with a Wide Voltage Range for Plug-In Electric Vehicles.
16. EV's Battery Charger Integrated with High Power Density and Efficiency.
17. A Proposed Cuk Converter based Dual Input Hybrid Converter Topology as EV Charging Station.

Renewable Energy Systems Projects

1. Comparison of Fly-back and Reverse Fly-back Converters for PV.
2. PV Based EV Charging Using Zeta Converter.
3. Isolated Switched-Boost Converter for PV Application.
4. Multiport Converter Based Solar PV System.
5. Expandable Bidirectional Three-Port Converter for PV-Battery Systems.
6. DC-Link Current Reduction for Current Source Converter-Based Wind Systems.
7. Multi-Port DC-DC Converter for Offshore Wind-Hydrogen Systems.
8. Coupled Inductors-Based Interleaved Boost Converters for Fuel Cells.
9. Output Current Control for Two-Switch Boost Buck Converters in DC Microgrids.
10. Double Loops Control of Fuel Cell Inverter with MDSC-Based PLL.
11. Interleaved High Step-Up Converter with Coupled Inductor and Transformer.
12. Two-Stage Converter Standalone PV-Battery System with VSG Control.
13. MPPT Scheme for Wind Driven DFIG System.
14. Isolated Multi-Modular Converter in Renewable Energy Distribution.
15. Grid-Connected Solar-PV System with Simplified Power Regulation.
16. Six-Level Transformer-Less PV Inverter with Reduced Leakage.
17. PEM Fuel Cell based PV/Wind Hybrid Energy System.
18. Enhancing Energy Management System for a Hybrid Wind Solar Battery Based Standalone Microgrid.
19. An Innovative Converterless Solar PV Control Strategy for a Grid Connected Hybrid PV/Wind/Fuel-Cell System Coupled With Battery Energy Storage.
20. Grid-Connected Hybrid Renewable Energy System Under Various Operating Conditions.
21. Variable Phase-Shift Switching Strategy For Multi-Input Interleaved Boost Converters in Solar Energy Systems.
22. Single Inductor-Multi Input Single Output Buck-Boost Converter for PV system.
23. Improving Solar Power Efficiency: A Comparison of MPPT Methods with a Focus on Hybrid ANNP&O Controller.
24. Single Switch Hybrid Network-Based Large Step-Up DC-DC Converter for Solar PV Applications.
25. Multiphase Unidirectional Active Bridge High- Step-Up DC-DC Converter with Multiphase Serial-Output.
26. DC-Link Voltage Control and Power Management of BESS Integrated Wind Power System Using MATLAB.
27. Hybrid Energy System Simulation and Modelling Incorporating Wind and Solar Power.

Power Quality Projects

Power Quality

1. Unified Approach for PV Integrated UPFC for Distributed Power System.
2. Design of Hybrid Systems with Transzsi-DVR for Mitigation of Power Quality Issues.
3. Solar PV Integrated UPQC to Enhance Power Quality Problems of Distribution Power System Using Fuzzy Logic Controller.
4. The Impact of Using STATCOM for PV Farms Connected with Grid.
5. Power Quality Enhancement in Grid-Connected Renewable Energy Sources Using MC-UPQC.
6. PV Operated DSTATCOM for Power Quality Enhancement for the Three Phase Four Wire Distribution System.
7. Reduction of THD and Power Quality Improvement by using 48-pulse GTO-based UPFC in the Transmission Systems.
8. ANN Controller for Mitigation of Power Quality Issues Using Single Phase Unified Power Flow Controller.
9. A Dynamic Reactive Power Control Strategy of LC-Type Energy Storage Converter for Achieving Zero Reactive Power and Improving Power Quality.
10. A Fuzzy Control Strategy for Improve the Performance of CHB-STATCOM Under Grid Faults.
11. Development of Internal Inverter Controller System with PWM VSC based STATCOM.
12. Dynamic Improvement of a UPQC System Operating Under Grid Voltage Sag/Swell Disturbances.
13. The Harmonic Mitigation for Heavy Rail Systems Using Shunt Active Power Filter.
14. V2G Integration Based on a UPQC With SMES.
15. Dual Function Photovoltaic System for Power Quality Enhancement and Power Generation.
16. Power Quality Enhancement of Stand-Alone Hydro Power Generation System Using UPQC.
17. Harmonic Elimination of AC Electric Railway Systems Using Shunt Active Power Filters.
18. Harmonic Current Compensation for CL Filtered Shunt Active Power Filter